CLAIMS

Process for writing a Bragg grating in a transparent substrate (36) forming a light guide, particularly in an optical fiber, the Bragg grating forming a spectral filter with regard to a light wave that passes through it, process according to which the interference pattern between two light beams (28, 30) with the same wavelength and coherent with each other but with an angular offset, is transferred directly 10 into the substrate que to a photosensitivity phenomenon same said substrate, this interference within the pattern being transferred in the substrate in the form e refraction a modulation of index of 15 substrate, this process being characterized in that at least one of the said light beams is divided into at least two sub-beams offset in phase with respect to each other.

- 2. Process according to claim 1, in which the interference pattern is transferred according to an amplitude separation configuration.
- 3. Process according to claim 1, in which the interference pattern is transferred according to a wave front separation configuration.
- 4. Process according to any one of claims 1 to 3, in which the position of the phase shift or the value 30 of this phase shift or the position and value of this

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phase shift in the light beam formed by the two subbeams, can be modified with time.

- 5. Apparatus for use of the writing process 5 according to claim 1, this apparatus being characterized in that it comprises:
 - at least one phase splitter (42) capable of creating a phase shift between at least two subbeams, due to a difference in the optical path, and
 - a means (61) of adjusting the position of the phase splitter, this adjustment means having at least two degrees of freedom, one being angular degree of freedom provided for adjustment of the value of the phase shift, and the other being a translation degree of freedom provided for adjustment of the position of the phase shift in the light beam formed by the two sub-beams.
- claim 5, 20 also Apparatus according/ comprising interferometric means with two or three 34) for transferring the interference mirrors (32, amplitude \ separation pattern according to an configuration.
- Apparatus according also to claim comprising interferometric means with a prism (46) or a the transferring folded mirror (64)for front interference pattern according to а wave separation configuration. 30

8. Phase skip Bragg grating with high spectral selectivity obtained by the process according to claim 1, the phase shift between the two sub-beams advantageously being equal to π .

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- grating obtained 9. Bragg by the process according to\ claim 1, this Bragg grating being identical to a pre-written Bragg grating and being written on this pre-written grating, at the position, with a phase change of π over the entire length of the pre-written grating, to erase all or some of the original grating in order to obtain a given reflection coefficient.
- 10. Fabry-Perot cavity delimited by two Bragg gratings at different positions in space, these two Bragg gratings being obtained by the process according to claim 1.
- 11. Bragg grating with a determined index modulation envelope, particularly an apodized Bragg grating, obtained by the process according to claim 1, by successively writing two Bragg gratings comprising parts in phase opposition, the time taken to overwrite one Bragg grating by the other being variable, to give a variable phase shift and a variable value of the phase shift.
- 12. Bragg grating according to claim 11, the 30 position of the phase shift being displaced by a programmable movement.

add A1)
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